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## PATENT SPECIFICATION

653,195



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## PROVISIONAL SPECIFICATION

## Making Self Adhesive Labels

We, FRANK PHILIP BOSSOM, a British subject, and SAMUEL JONES & Co. LIMITED, a British company, both of the company's address, Peckham Grove, 5 London, S.E.15, do hereby declare the nature of this invention to be as follows:—

Labels coated on one side with a pressure sensitive adhesive have been attached by means of the adhesive to a backing strip from which they can be peeled individually when required for use. It has been proposed to produce such labels by applying a label forming strip to a travelling band (which may be the backing strip) by means of a pressure sensitive adhesive and cutting through the label strip to form the labels without cutting the travelling band. If the 10 backing strip itself is used as the travelling band it is in practice almost, if not completely, impossible to control the dies so accurately as to avoid cutting the backing strip and there has therefore been 15 used a separate travelling band of hardened steel on which the labels are formed, the labels being subsequently married to the backing strip.

The present invention has for an object 20 to enable the labels to be cut from a strip of label material adhering to a backing strip without danger of cutting through the backing strip.

This is achieved in accordance with the 25 present invention by using the label paper and backing strip to restrict movement of the cutting edge of the die through them to less than the combined thickness of the label paper and the backing strip and preferably to only slightly 40 more than the thickness of the label paper alone.

In apparatus for carrying out the method of the invention, the label paper 45 and the backing strip, at the point at which the labels are formed, are between two parallel hard surfaces from at least one of which projects to a distance slightly greater than the thickness of the 55 label paper the cutting edges of the dies.

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the two surfaces are prevented by the material between them from approaching one another more closely than the thickness of the label paper and backing strip and the cutting edges of the dies can thus 60 penetrate only through the label paper which is arranged of course on the side next the dies.

One of the two surfaces can advantageously be a hardened steel plate of 60 great rigidity for which latter purpose it can be mounted on a thick, heavy casting. The other surface can be provided in the die itself which then comprises a member having a shallow recess defined 65 by the cutting edge of the shape of the label to be formed, the flat base of this recess being the surface required.

The method of the present invention lends itself to the production of labels on 70 both sides of a backing or carrier strip. For this purpose, cutting edges project by an amount slightly greater than the thickness of the label paper from both of the hard surfaces between which is fed 75 a carrier strip having label paper adhering to both sides. In this case, each hard surface may be provided by the flat base of a shallow recess in a die member defined by the cutting edge. 80

Other parts of the invention are embodied in the preferred forms which will now be described in some detail by way of example.

In one form an anvil is formed by a 85 thick heavy casing which is faced with a hardened steel plate which is renewable when desired. Dies are brought down on to this anvil by any suitable press mechanism, preferably at high 90 speed.

The dies are in sections of the same shape as the labels to be produced, for example if circular labels are to be produced the dies may be cylindrical. In 95 the end of the die a recess is formed having a smooth base and defined by an upstanding rim which forms the cutting edge.

The recess is of depth slightly greater 100

than the thickness of the label paper. It may conveniently be 0.001 in. deeper than this thickness so that if a label paper 0.004 in. thick on a backing strip is to be used, the recess in the die would be say 0.005 in. deep.

The inside surface of the rim is at a sharper angle to the axis of the die than in the outside surface and the two surfaces intersect to form a sharp cutting edge. The inside surface may for instance be at 8° to the die axis and the outer surface at about 25°.

In use, a laminated strip comprising a backing strip of lacquered glassine and a strip of label paper adhering thereto by means of a pressure sensitive adhesive is fed intermittently between the dies and the anvil. The dies are brought down on to the anvil but are prevented by the laminated strip from going nearer to the anvil than the total thickness of the strip. As the cutting edge is of less depth than this thickness, it cannot penetrate the backing strip but will cut through the label. A slight indentation may be

made in the backing strip but it is not cut in any way.

After the labels have been cut, the residue of the label strip is peeled from the backing strip, leaving the individual labels adhering thereto.

In another form, the anvil is replaced by a set of dies substantially similar to the others and arranged so that they are in alignment therewith. A laminated strip comprising a carrier strip of lacquered glassine with strips of label paper on both sides is fed through between the dies and labels are cut on both sides of the carrier strip.

It will be understood that the invention is not restricted to the details of the preferred forms described which can be modified without departing from the broad ideas underlying them.

Dated the 13th day of July, 1948.

ANDREWS & BYRNE,

Agents for the Applicants,

201-6, Bank Chambers,

329, High Holborn, London, W.C.1.

### COMPLETE SPECIFICATION Making Self Adhesive Labels

We, FRANK PHILIP BOSSOM, a British subject, and SAMUEL JONES & Co. LIMITED, a British company, both of the company's address, Peckham Grove, London, S.E.15, do hereby declare the nature of this invention and in what manner the same is to be performed to be particularly described and ascertained in 55 and by the following statement:—

Labels coated on one side with a pressure sensitive adhesive have been attached by means of the adhesive to a backing strip from which they can be peeled individually when required for use. It has been proposed to produce such labels by applying a label forming strip to a travelling band (which may be the backing strip) by means of a pressure sensitive adhesive and cutting through the label strip to form the labels without cutting the travelling band. If the backing strip itself is used as the travelling band it is in practice almost, if not completely, impossible to control the dies so accurately as to avoid cutting the backing strip and therefore has therefore been used a separate travelling band of hardened steel on which the labels are formed, the labels being subsequently married to the backing strip.

The present invention has for an object to enable the labels to be cut from a strip of label material adhering to a backing strip without danger of cutting through the backing strip.

This is achieved in accordance with the present invention by using the label paper which term is intended throughout this specification to include any suitable material from which labels can be formed, and backing strip to restrict movement of the cutting edge of the die through them to less than the combined thickness of the label paper and the backing strip and preferably to only slightly more than the thickness of the label paper alone.

In apparatus for carrying out the method of the invention, the label paper and the backing strip, at the point at which the labels are formed, are between two parallel hard surfaces from at least one of which projects to a distance slightly greater than the thickness of the label paper the cutting edges of the dies. The two surfaces are prevented by the material between them from approaching one another more closely than the thickness of the label paper and backing strip and the cutting edges of the dies can thus penetrate only through the label paper which is arranged of course on the side next the dies.

One of the two surfaces can advantageously be a hardened steel plate of great rigidity for which latter purpose it can be mounted on a thick, heavy casting. The other surface can be provided in the die itself which then comprises a member having a shallow recess defined

by the cutting edge of the shape of the label to be formed, the flat base of this recess being the surface required.

The method of the present invention lends itself to the production of labels on both sides of a backing or carrier strip. For this purpose, cutting edges project by an amount slightly greater than the thickness of the label paper from both of the hard surfaces between which is fed a carrier strip having label paper adhering to both sides. In this case, each hard surface may be provided by the flat base of a shallow recess in a die member defined by the cutting edge.

Other parts of the invention are embodied in the preferred forms which will now be described in some detail by way of example with reference to the accompanying drawings in which:—

Fig. 1 is a diagrammatic view of a die in the process of cutting labels.

Fig. 2 is a section of a die to a considerably enlarged scale and

Fig. 3 is a view similar to Fig. 1 of a modification.

As indicated in Fig. 1, an anvil is formed by a thick heavy casing 1 which is faced with a hardened steel plate 2 which is renewable when desired. Dies 3 (of which only one is shown) are brought down on to this anvil by any suitable press mechanism (not shown), preferably at high speed. Usually of course, a number of dies will be used simultaneously.

The dies 3 are, in section, of the same shape as the labels 4 to be produced, for example if circular labels are to be produced the dies may be cylindrical. In the end of the die a recess 5 is formed having a smooth base 6 and defined by an upstanding rim 7 which forms the cutting edge.

The recess 5 is of depth slightly greater than the thickness of the label paper 8. It may conveniently be 0.001 in. deeper than this thickness so that if a label paper 0.004 in. thick on a backing strip 9 is to be used, the recess in the die would be say 0.005 in. deep.

The inside surface 10 of the rim is at a sharper angle to the axis of the die than is the outside surface 11 and the two surfaces intersect to form a sharp cutting edge. The inside surface 10 may for instance be at 8° to the die axis and the outer surface 11 at about 25°.

In use, a laminated strip comprising a backing strip 9 of lacquered glassine and a strip of label paper 8 adhering thereto by means of a pressure sensitive adhesive is fed intermittently between the dies 3 and the anvil 2. The dies are brought down on to the anvil but are pre-

vnted by the laminated strip from going nearer to the anvil than the total thickness of the strip. As the cutting edge is of less depth than this thickness, it cannot penetrate the backing strip but will cut through the label. A slight indentation may be made in the backing strip but it is not cut in any way.

After the labels 4 have been cut, the residue 12 of the label strip is peeled from the backing strip, leaving the individual labels adhering thereto.

In the form shown in Fig. 3 the anvil is replaced by a set of dies 3<sup>1</sup> substantially similar to the others and arranged so that they are in alignment therewith. A laminated strip comprising a carrier strip of lacquered glassine 9 with strips of label paper 8 on both sides is fed through between the dies and labels 4 are cut on both sides of the carrier strip.

It will be understood that the invention is not restricted to the details of the preferred forms described which can be modified without departing from the scope of the accompanying claims.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

1. A method of forming labels on a backing strip which comprises cutting the labels from label paper adhering to a backing strip by dies of which the movement of the cutting edge through the composite strip is restricted by the composite strip to less than the thickness of the composite strip.

2. A method of producing labels adhering to a backing strip which comprises forming a composite strip of label paper and backing paper united by a pressure sensitive adhesive, passing the strip between an anvil and a die having a cutting edge surrounding a shallow recess of depth less than the thickness of the composite strip and causing the die to move towards the anvil until the die is arrested by the abutment of the bottom of the shallow recess against the composite strip.

3. A method of producing labels on both sides of a backing strip which comprises forming a composite strip of backing paper with label paper on each side, passing the strip between opposed dies each of which has a cutting edge surrounding a shallow recess of depth equal to or slightly greater than the thickness of the label paper and moving the dies towards one another until they are arrested by the abutment of the bottoms of the shallow recesses against the composite strip.

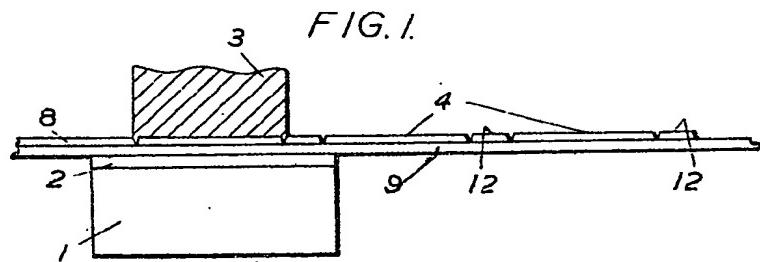
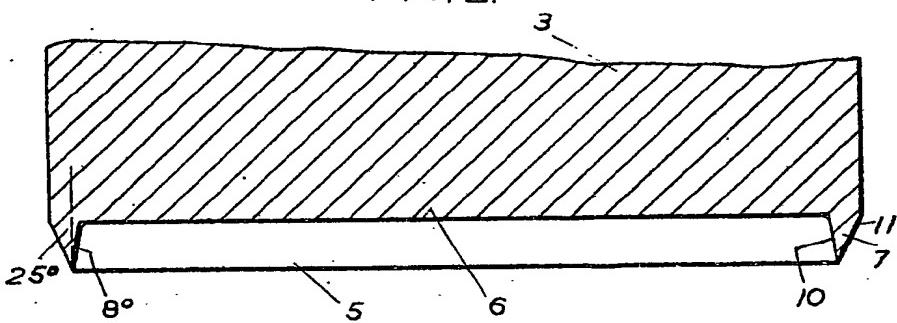
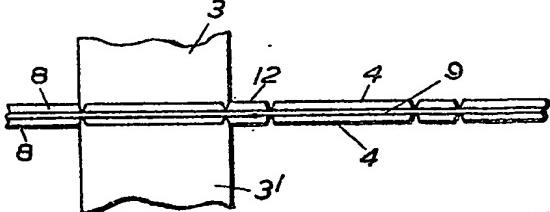
- 4
4. A method according to Claim 2 in which the anvil comprises a hardened steel plate of great rigidity.
5. A die for cutting labels on a backing strip according to the method of any of the preceding claims having a cutting edge surrounding a shallow recess of which the depth is equal to or slightly greater than the thickness of the label 10 and less than the combined thickness of the label and the backing strip.
6. A die according to Claim 5 in which the cutting edge has an inside surface at a sharper angle to the axis of the 15 die than is the outside surface.
7. A plurality of labels attached by pressure sensitive adhesive to a backing strip when produced by the method of either Claim 1 or Claim 2.
8. A plurality of labels attached by pressure sensitive adhesive to each side of a backing strip when produced by the method of Claim 3.
9. A method of cutting labels from a strip of label material adhering to a 25 backing strip substantially as described with reference to the accompanying drawings.
10. A die for cutting labels on a backing strip according to the method of 30 any of the preceding claims substantially as described with reference to the accompanying drawings.

Dated the 13th day of July, 1949.

ANDREWS & BYRNE,  
Agents for the Applicants,  
201-6, Bank Chambers,  
329, High Holborn, London, W.C.1.

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[This Drawing is a reproduction of the Original on a reduced scale.]

*F/G. 2.**F/G. 3.*

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